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CONTROL OF INSECTS WITH DISEASES X

With the appearance of residue and resistance problems following the use of chemical insecticides, increased interest has been shown in the possibilities of using insect diseases to control pest insects. Recently, the U. S. Department of Agriculture established an insect pathology laboratory in the Beekeeping and Insect Pathology Section of the Entomology Research Branch at the Agricultural Research Center, Beltsville, Md.

Insect diseases frequently appear under natural conditions, and at times they destroy large populations of insect nests. Members of the insect pathology laboratory at Beltsville and of several institutions elsewhere are conducting research in an effort to develop methods of controlling injurious insects by creating enzootics of disease within the insect population.

Diseases of insects, like those of plants and other animals, are caused by a number of different types of microorganisms, including viruses, bacteria, fungi, protozoa, and nematodes. A disease in an insect, like those in higher animals, goes through an incubation period during which the host animal continues to feed and injure the crop. It is, therefore necessary, in some cases, to apply disease organisms when the insects are quite small, so that the incubation period will be completed and the insects killed by the disease before they can reproduce or grow large enough to cause economic injury to the crop.

Fortunately, the great majority of microorganisms causing diseases of insects attack only insects--often very limited groups of insects--and are unable to cause infection in plants or higher animals. Nevertheless, each pathogen undergoing research for possible utilization in insect control is carefully tested for any possible virulence towards plants or higher animals. It may also be necessary to make sure that beneficial insects such as the honey

bee, and also insect parasites and predators, are not susceptible to the pathogen being tested.

Promising research is now being carried out at the Beltsville laboratory on a number of important anti-insect agents. These include (1) virus diseases of cabbage loopers, armyworms, corn earworms, tobacco budworms, pine sawflies, and tent caterpillars; (2) a nematode that attacks several important agricultural insect pests; and (3) two fungus diseases of aphids. Most of these projects are now in the preliminary field-testing stage.

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